



# Automatic Dog Feeder

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## TOOLS:

- [Drill Press or Hand Drill \(1\)](#)
- [File \(1\)](#)
- [Hole Drill \(1\)](#)
- [Hot Glue gun & hot glue \(1\)](#)
- [Measuring tape \(1\)](#)
- [Sandpaper \(1\)](#)
- [Standard drill bits \(1\)](#)
- [Table saw \(1\)](#)  
*[or you could use a bandsaw, or the old fashioned hand saw](#)*



## PARTS:

- [Arduino Uno \(1\)](#)
- [Acrylic sheet \(2\)](#)
- [Plywood board \(1\)](#)
- [Parallax RFID Reader \(1\)](#)
- [RFID tag \(1\)](#)
- [Parallax/Futaba servomotor \(1\)](#)
- [Peanut Butter Jar \(1\)](#)
- [Lid from Peanut Butter Jar \(1\)](#)
- [Small Breadboard \(1\)](#)
- [wine cork \(2\)](#)
- [Wooden Rod \(1\)](#)
- [popsicle stick \(1\)](#)
- [Nails \(2\)](#)  
*[2 to 3 inches long](#)*

## SUMMARY

I am going to teach you how to properly set up an Arduino for this configuration and explain some basic programming. I am also going to explain how to build the system in a few simple steps.

## Step 1 — Automatic Dog Feeder



- Make sure that you have all of your components ready.
- Take your plywood and cut it down to 13½" by 9½".

## Step 2



- Next cut down one of the acrylic sheets into a 5" by 5" square.
- Then using the remaining acrylic from the sheet, fabricate two 4¾" by 1" blocks.
- The 4¾" blocks are used to raise the 5"x5" acrylic square so that the slider can be put under it to regulate the food flow.

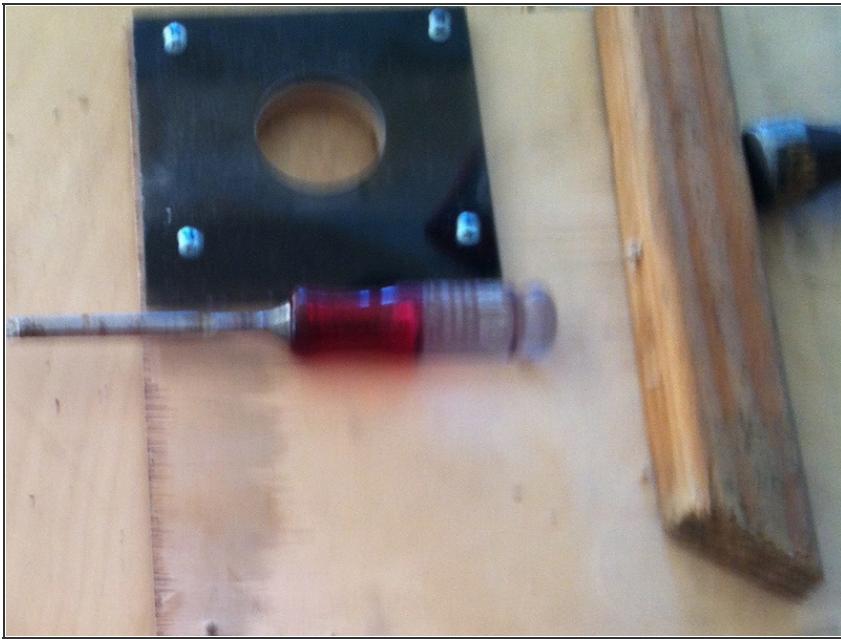
### Step 3



- After machining all of the acrylic parts, take a pair of tin snips and cut out a rough circle approximately in the middle of the peanut butter lid. Make sure the hole's diameter is bigger than 2".

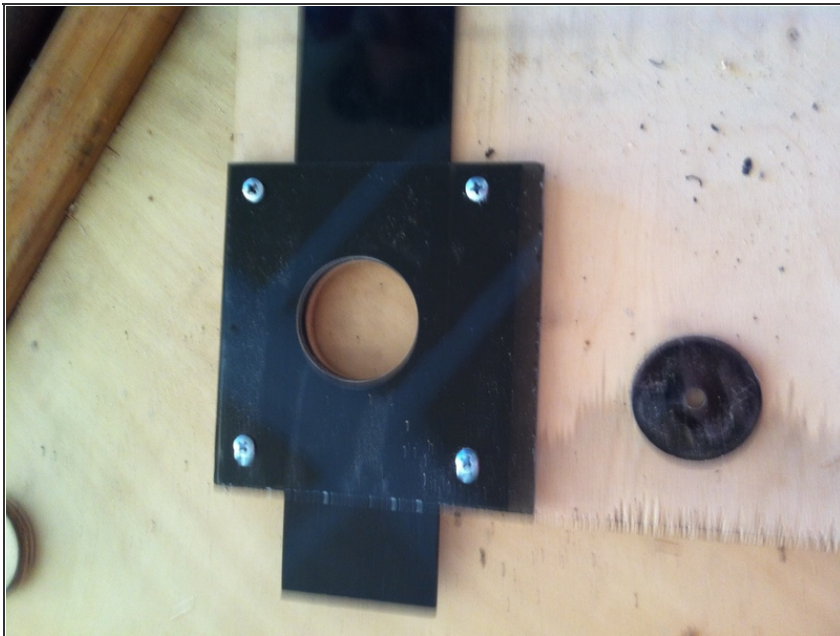


## Step 4



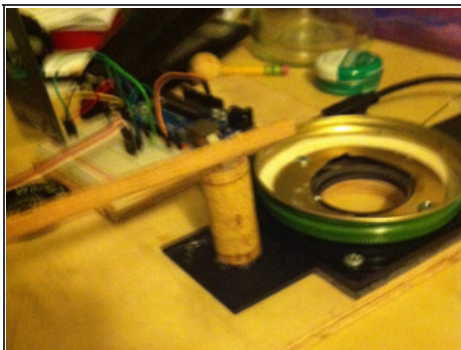
- Once you have fabricated all of your pieces, you can begin to put together your dog feeder.
- Start by measuring the distance between your two 4<sup>3</sup>/<sub>4</sub>" blocks and make sure that they are far enough apart that the food gate can slide easily through them.
- After confirming they are far enough apart, screw them in using self-tapping screws. Make sure to go slowly because the acrylic can crack very easily.
- Use the drill press and hole-cutter bit to cut 2"-diameter holes in the all three layers; the square, the gate, and the wood. This is the main passageway for the food to go through.

## Step 5



- Next align the peanut butter jar lid over the hole, making sure that it allows the entirety of the holes drilled into the wood and acrylic to be exposed.
- Screw the peanut butter jar lid in very carefully making sure that you do not crack the acrylic.
- The picture shows what it should look like when it is assembled correctly.

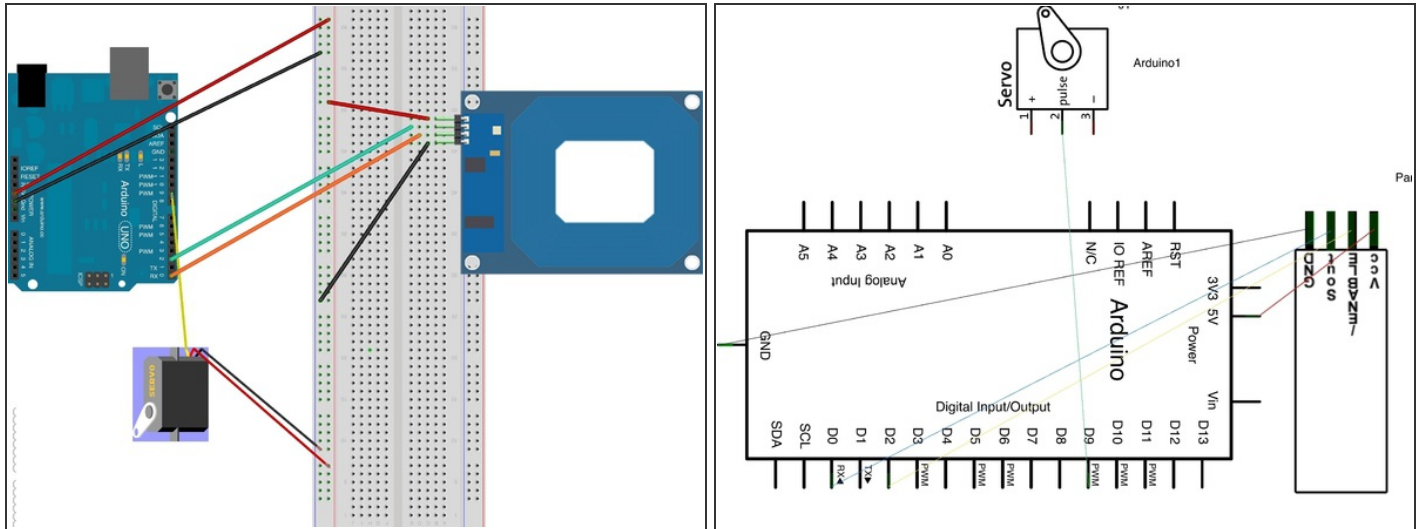
## Step 6



- Once all of this is done you will build the drive rod.
- I used a 10" long 1/4" diameter rod.
- Drill a two small holes into the drive rod.
- Drill two holes into the popsicle stick. One is going to be used to screw the popsicle stick to the servo and the other is for one end of the drive rod to be attached to.
- Glue a rubber cork to the food gate and push a nail through the unoccupied end of the drive rod into the cork.
- Note: You may have to tweak the placement of these parts; it is going to be different for everyone.
- You are now ready to start programming.

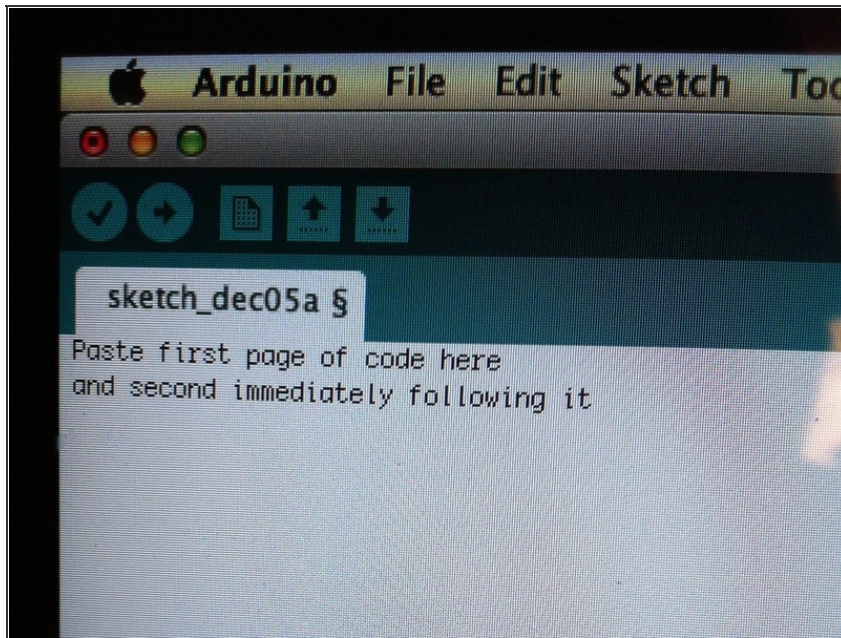


## Step 7



- Here is the electrical design for the Arduino and breadboard.
- Assemble your electronics exactly as they are here. Note that the RX on the Arduino must be unplugged or else the computer will be unable to read the Arduino.

## Step 8



- Download the two PDF files at the top of this guide.
- Open the Arduino IDE. Insert the code from `RFID-readerfor-Arduino.pdf` first. Immediately after that, on a new line, insert the code from `bytesread.pdf`. This should be the only code in the file.
- Make sure that you save your work.
- Note: Because we all have different kinds of dogs and I do not want to feed my beagle as much as I feed my German shepherd, I have made it convenient to find the code that controls the amount of food given the dog by changing the color of the numbers to red.
- Insert the command `delay(x)` where `x` = the number of milliseconds the food valve is left open.



## Step 9



- Once you have done all of this, test it out and tweak it. It will take the hassle out of feeding your dogs forever. So CELEBRATE!

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Fabricating the materials is not very difficult if you have basic knowledge of how to use tools and basic wiring. The complications will arise when trying to modify the code other than in the places designated.

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